BIOENERGY INDONESIA: POLICY, INDUSTRY, AND SUSTAINABILITY INITIATIVES

Maritje Hutapea
Director for Bioenergy
THIS PRESENTATION

1. Policy and Regulation
2. Bioenergy Development Program
3. Sustainability Initiatives
MAIN POLICIES ON BIOENERGY

1. To increase provision and utilization of bioenergy for significant contribution in national energy mix
2. To improve energy access through sustainable bioenergy utilization, in particular in rural area.
3. To promote bioenergy industry as one of significant economic sector
4. To promote the utilization of bioenergy as part of green energy under the national climate change program to reduce the greenhouse gases.
REGULATIONS RELATED WITH BIOENERGY

1. Law on Energy No 30 year 2007 putting new renewable energy including bioenergy as important resources that their utilisations have to be increased.

2. Presidential Regulation No 5 year 2005 targetting 5% of bioenergy in primary energy mix in 2025.

3. Ministerial Decree No 32 year 2008 gradually mandatorizing the use of biofuel to be blended with petroleum-based fuel.

4. Regulation of tax and customs facility for renewable energy resources utilization activities.
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4. Concluding Remarks
BIOENERGY UTILIZATION

Biofuel:
1. Transportation sector;
2. Industry;

Biogas: Conversion Oil/Kerosene or Fuel Wood to Biogas
1. Rural household;
2. Small industry: soybean cake industry, tapioca starch industry, tobacco;

Bio-Briquette:
1. Household;
2. Small industry.

Electricity:
1. Own use;
   • Palm oil estate;
   • Sugar plantation;
   • Industry;
2. Interconnected to grid.
PROGRAM OF BIOENERGY

1. Program on biofuel to substitute fossil fuel
2. Biogas for household
3. Biomass (solid) for fuel and electricity
4. Energy-self Sufficient Village Program
5. Improved cook stove for rural energy
6. SUMBA Iconic Islands on Renewable Energy
REALIZATION OF BIOENERGY UTILIZATION IN INDONESIA

1. BIOFUEL
   • There are 23 biodiesel producers and 7 bioethanol producers that have commercial business license to operate in Indonesia.
   • Installed capacity of biodiesel is 4.2 million KL/year and installed capacity of bioethanol is 156,000 KL/year.
   • Utilization of biofuel at:
     ✓ transportation sector (with mix by 7.5% at PSO Fuel and 2% at Non PSO Fuel);
     ✓ industry sector (specifically on coal and mineral mining industries); and
     ✓ electricity generation.

2. BIOGAS FOR HOUSEHOLD
   • Implemented by government budget through Self Sufficient Energy Village Program (Non-Commercial),
   • Semi commercial basis through Indonesia Domestic Biogas Programme. BIRU programme (Cooperation between Government of Indonesia and the Government of Netherland). Status until October 2012 the total biogas digester that have been built is 6,700 unit from total target is 8,000 unit at the end of 2012,
   • By other programs: up to 6000 units

3. BIOENERGY BASED POWER PLANT
   • Own use (agricultural industry) : 400 MW;
   • Interconnected to national grid (PT. PLN Persero) by February 2012 : 71 MW.
BIODIESEL PRODUCTION CAPACITY

PT. Musim Mas 420.000 MT/Y
PT. Pelita Agung Agri Industries 200.000 MT/Y
PT. Darmex Energi Perkasa 400.000 MTI/Y
PT. Wilmar Bioenergy Ind 1.050.000 MT/Y
PT. Sintong Abadi 35.000 Kl/Y
PT. Ciliandra 250.000 MT/Y
PT. Petro Andalan Nusantara 150.000 Kl/Th
PT. Sinar Alam Permai 41.400 MT/Y
PT. Cemeral Energi Perkasa 400.000 MTI/Y
PT. Bioenergy Pratama Jaya 66.000 MT/Y
PT. Energi Alternatif Chem, Ind 40.000 MT/Y
PT. Eternal Buana Chem, Ind 7.000 MT/Y
PT. Sinar Alam 41.400 MT/Y
PT. Darmex Biofuels 150.000 MT/Y
PT. Primanusa Palma Energi 24.000 KL/Y
PT. Energi Alternatif 7.000 MT/Y
PT. Damai Sejahtera Sentosa 120.000 MT/Y
PT.永恒food abbi tirta tehnika 13.200 KLY
PT. Alia Mada Perkasa 11.000 KLY
PT. Biodiesel tosin 10.240 KLY
PT. anugerah inti gemanusa 40.000 MT/Y
PT. Energi alternatif 7.000 MT/Y
PT. anugerah inti gemanusa 40.000 MT/Y
PT. anugerah inti gemanusa 40.000 MT/Y

Total installed capacity: 4.8 million kL
BIOETHANOL PRODUCTION CAPACITY

- PT. Indolampung Distillery: 50,000 MT/Th
- PT. Anugrah Kurnia Abadi: 55,000 KL/Th
- PT. Pasadena Biofuels Mandiri: Ethanol: 9,990 KL/th, Biodiesel: 10,240 KL/th
- PT. Kawan sejati prima: 10,240 KL/Th
- PT. Berlian Energy: 10,000 KL/Th
- PT. Molindo Raya: 50,000 KL/Th
- PT. EN3 Green Energy: 180,000 KL/Th
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SUSTAINABILITY ASPECT OF BIOENERGY

• Provision of sustainable bioenergi feedstock in relation with food uses. Currently, there are no dedicated feedstock for bioenergy, and only use existing agricultural production.

• Sustainable operational and maintenance, in particular for small scale application.

• Socio and economic acceptance that can support local social economic development.
BIOENERGY SUSTAINABILITY INITIATIVES

1. Indonesian Sustainable Palm Oil
2. ERIA Biomass Sustainability
Indonesia Sustainable Palm Oil

- Indonesian Sustainable Palm Oil (ISPO) was issued in 29 March 2011 as a reference to promote sustainable palm oil plantation in accordance to the market and global requirements.
- The content of the ISPO is not different very much from Europe's Roundtable Sustainable Palm Oil (RSPO) that has earlier been implemented.
- Challenges to make it become a competitive power or a national palm oil power namely assuring that its process would be easy and appropriate, auditing and auditors, certificates for farmers and acceptance of buyers and international community.
- The ISPO has been officially effective as of March 2012 and it is hoped all oil palm plantation companies will have obtained the ISPO certificate by 2014.
- In 2011, Indonesia has been appointed by GBEP as a Country Project to Pilot the Global Bioenergy Partnership (GBEP) Sustainability Indicators for Bioenergy.
Asia Biomass Energy Principles

Approved by Asian Energy Minister Meeting
@ Bangkok in Aug. 2008

1. Ensuring Quality
2. Respect for Natural Diversity
3. Compatibility with Food Supply
4. Compatibility with Environment
5. Stable Supply of Biomass Energy
6. Cost Efficiency

Discussion & Recommendations by ERIA WG provided scientific supports for the principles
GBEP SUSTAINABILITY INDICATOR

i. Indonesia is one of pilot country to test the implementation of GBEP Bioenergy sustainability indicators. This project is supported by FAO and funded by International Climate Initiative (ICI) German.

ii. The objectives are to assess and enhance the capacity of Indonesia to evaluate bioenergy sustainability using the GBEP indicators and use them to inform bioenergy policymaking; and to learn lessons about how to apply the indicators as a tool for sustainable development and how to enhance the practicality of the tool.

iii. Scope of activities:

i. Identifying existing national and international data sources and assessing what data are required for measuring the Indicators;

ii. Better understanding the Indonesian bioenergy system through collection of spatially discrete data on production, infrastructure, and distribution logistics;

iii. Facilitating multi-stakeholder dialogue within Indonesia on indicators, data, and methodologies;

iv. Producing maps providing a spatial evaluation of bioenergy impact and land suitability
CO2 REDUCTION OF
INDONESIAN BIODIESEL FROM PALM OIL

<table>
<thead>
<tr>
<th>INSTITUTION</th>
<th>CO2 SAVING COMPARED WITH OIL</th>
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<tbody>
<tr>
<td>Indonesian Palm Oil Council</td>
<td>56%</td>
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<tr>
<td>Ministry of Agriculture</td>
<td>56,7% - 59,8%</td>
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</tbody>
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**Note:**
Currently Indonesian biodiesel production from palm oil is being assessed and validated by US EPA due to their finding that CO2 reduction from biodiesel does not achieve the sustainability criteria of RFS 2.
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FUTURE SUSTAINABLE BIOENERGY DEVELOPMENT

- Development of non-edible feedstock and dedicated feedstock for bioenergy;
- To optimize wastes as bioenergy feedstocks such as palm oil wastes, municipal solid waste, agroindustry wastes that are currently not used.
- Improving productivity of main feedstocks such as palm oil, jatropha, cassava and sugar cane;
- Development of second generation of biofuel that will create sustainable and low cost biofuel industry such as algae;
- To seek cooperation on R&D on lignocellullosic based or woody-biomass bioethanol.
CONCLUDING REMARKS

• Policy and regulation has been available in accelerating bionergy implementation and it will continuously be developed.

• As part of national energy policy, the utilization of bioenergy will be continuously implemented and improved in order to strengthen national energy security as well as reducing national emission reduction.

• Indonesia will continue to work with other countries and international community to develop sustainable bioenergy industry and also global environmental issues.
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